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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/585,022	06/28/2006	Andrew S. D'Souza	59490US004	5800

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3M INNOVATIVE PROPERTIES COMPANY  
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ST. PAUL, MN 55133-3427

EXAMINER
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CHOI, LING SIU

ART UNIT	PAPER NUMBER
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1713

NOTIFICATION DATE	DELIVERY MODE
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07/03/2007

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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LegalDocketing@mmm.com

<b>Office Action Summary</b>	Application No. 10/585,022	Applicant(s) D'SOUZA, ANDREW S.	
	Examiner Ling-Siu Choi	Art Unit 1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/30/2006</u> . | 6) <input type="checkbox"/> Other: ____  |

**DETAILED ACTION**

1. Claims 1-8 are now pending, wherein claims 1-7 are drawn to a filled thermoplastic resin composite and claim 8 is drawn to an article.

***Claim Analysis***

2. Summary of claim 1:

A filled thermoplastic resin composite comprising	
A	at least one thermoplastic olefin
B	<u>maleic anhydride</u>
C	<u>glass bubbles</u>

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 and 7-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Hase et al. (US 2002/0142175 A1) in view of Curzon et al. (US 5,597,522).

Hase et al. disclose a resin composition comprising (a) 30-80 parts by weight of a polyolefin thermoplastic elastomer, (b) 1-20 parts by weight of a polypropylene modified with 0.1-10% by weight of **maleic anhydride**, (c) 5-50 parts by weight of a styrene-based polymeric elastomer, and (d) 10-30 parts by weight of a **propylene polymer** selected from propylene homopolymers and propylene-ethylene copolymers having a propylene content of at least 50% by weight, wherein a total amount of the resin components (a), (b), (c) and (d) is 100 parts by weight; ([0058]; claim 1).

The difference between the present claims and the disclosure of Hase et al. is the requirement of glass bubble to be used in the present invention.

Curzon et al. disclose a composition comprising a polyolefin and a hollow microsphere as a filler, wherein the microsphere is a **glass bubble** (abstract; col. 3, lines 7-11). Curzon et al. further disclose that "it is possible to compound "glass bubbles" with, inter alia, polypropylene using extrusion equipment, with less than 5% by weight breakage to produce **low-density composite materials** [*motivation*].

Proposed uses thereof are extruded parts for buoyant and thermal insulation and large automotive moldings" (col. 1, lines 28-35). In light of such benefit, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use glass bubbles in the disclosure of Hase et al. and obtain the present claims.

5. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hase et al. (US 2002/0142175 A1) in view of Curzon et al. (US 5,597,522) as applied to claims 1 and 7-8 above, and further in view of Guillet (EP 0 436 198 A2).

Art Unit: 1713

The disclosure of Hase et al. in view of Curzon et al. is adequately set forth in paragraph 4 and is incorporated herein by reference.

The difference between the present claims and the disclosure of Hase et al. in view of Curzon et al. is the requirement of the glass bubbles modified with aminosilane.

Guillet discloses a glass fiber-reinforced composite material obtained by (A) treating **glass** fibers with a aminosilane such as  **$\gamma$ -aminopropyltriethoxysilane** and a vinyl silane and (B) admixing the treated glass fibers with a **polyolefin resin** such as polypropylene (abstract; Claims 1, 7-9, and 20). Guillet further discloses that "[i]n order to obtain optimum performance from covalent fiber bonding agents in the production of polyolefin-based composites, there is a need for a process for pre-treatment of glass fiber which will enhance the ability of the treated fiber to participate in covalent bonding to the polyolefin matrix" [**motivation**] (page 3, lines 13-16). It is noted that the filler is glass fibers instead of glass bubbles. The difference between the glass fiber and the glass bubbles is the shape but not properties. Thus, both glass fibers and glass bubbles would be modified with the aminosilane by the same reaction mechanism. In light of such benefit, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use aminosilane and vinylsilane to modify the glass bubbles to enhance the ability of the treated glass bubbles to participate in covalent bonding to the polyolefin matrix and thereby obtain the present invention.

Art Unit: 1713

6. Claims 1 and 5-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Hase et al. (US 2002/0142175 A1) in view of Beck (US 3,365,315).

The disclosure of Hase is adequately disclosed in paragraph 4 and is incorporated herein by reference.

The difference between the present claims and the disclosure of Hase et al. is the requirement of glass bubble to be used in the present invention.

Beck discloses a composite comprising a resin and a glass bubbles, wherein the glass bubbles has a high strength and the use of the glass bubbles would result in the composite having a very low density but high strength (col. 2, lines 23-28). Beck further disclose that the glass bubbles "had an average true particle density of 0.42. They were placed in mineral oil and the oil subjected to 12,000 p.s.i. Only 28 % of the bubbles were crushed by this treatment, indicating a surprisingly high resistance to crushing" (col. 7, lines 7-13). In light of such benefit, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the glass bubbles disclosed by Beck in the disclosure of Hase and thereby obtain the present claims.

### ***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098.

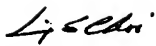
If attempt to reach the examiner by telephone are unsuccessful, the examiner's

Application/Control Number: 10/585,022

Page 6

Art Unit: 1713

supervisor, David Wu, can be reached on 571-272-1114.



LING-SUI CHOI  
PRIMARY EXAMINER

June 25, 2007